# *KVM08*

***Keyboard, Mouse & Monitor Switch***

## COPYRIGHT©

This document is a copyright of the original manufacturer, 2000. The original manufacturer reserves the right to make improvements to the product(s) described in this manual at any time without notice. This manual may not, in whole or in part, be photocopied, reproduced, transcribed, translated, or transmitted in whatever form without the written consent of the manufacturer, except for copies retained by the purchaser for backup purposes. All rights are reserved.

## TRADEMARKS™

The mentioned trademarks or registered trademarks are properties of their respective companies. Products mentioned in this manual are mentioned for identification purposes only. All names of products or services appearing in this manual are the trademarks or registered trademarks of their respective organizations and companies.

© Copyright 2000

Ver. No. V1.0
LEI-UM-KVM08
Date : 2000/10/18

# TABLE OF CONTENTS


| | | | |
|---|---|---|---|
| **CHAPTER 1** | | **INTRODUCTION** | **1** |
| | 1.1 | SPECIFICATION | 2 |
| | 1.2 | PACKING CHECK LIST | 3 |
| **CHAPTER 2** | | **INSTALLATION** | **4** |
| | 2.1 | PRODUCT DETAIL | 4 |
| | 2.2 | SINGLE UNIT OR DAISY-CHAIN OPERATION | 5 |
| | 2.3 | HARDWARE INSTALLATION | 6 |
| | 2.4 | DAISY-CHAIN | 10 |
| **CHAPTER 3** | | **OPERATION** | **12** |
| **CHAPTER 4** | | **TROUBLE SHOOTING** | **16** |

# CHAPTER 1.

## INTRODUCTION

The KVM08 gives you the ultimate in control of 8 PCs from one keyboard, mouse and monitor. To expand control ability, the DB-25 Daisy-Chain allows sixteen KVM08 stack up for control 128 PCs from one keyboard, mouse and monitor. OSD (On-Screen Display) menu provides human friendly interface for naming each PCs and selecting one of them.

**Feature**

- Allows a user to control eight computers from one keyboard, mouse and monitor
- No software required, each channel contains a microprocessor emulation to intelligently manage the boot-up process for all your attached PCs boot-up transparently and simultaneously.
- DB-25 Daisy-Chain ports allows control over as many as 128 computers through 16 banks of KVM08 units
- On-Screen Display menu gives the user a visual interface to naming and selecting computers
- On-Screen Display, push button or keyboard "Hot Key" commands switching
- AutoScan mode for even more convenience
- Audible feedback when switching
- Recalls CAPS LOCK, NUM LOCK and SCROLL LOCK keys' status for each computer automatically
- Supports VGA, SVGA and MultiSync monitors
- Up to 1600 x 1200 resolution support
- Integrated mouse conversion technology allows connection of AT type computers that have serial mouse ports while using a PS/2 mouse only at console
- Keyboard and mouse emulation for error-free boot ups
- Microsoft® IntellMouse® support and emulation
- Supports both AT and PS/2 type keyboards (AT requires AT - PS/2 adapter)
- User inexpensive and commonly found standard cables
- Status LEDs on front panel

## 1.1 SPECIFICATION

- Computer Connections : 8
- Port LEDs : 8
- Bank 7-segment LED : 1
- Port 7-segment LED : 1
- Keyboard : 6-pin Mini-DIN
- Mouse : 6-pin Mini-DIN
- Monitor : 15-pin HD DB type
- Cascade : 25-pin D-Sub
- Cascade Port : 1
- On Screen Display : Yes
- 19” Rack Mount : Yes
- Cascade (Level) : 16
- Max. Access PCs : 128
- Manual Selection : Push Button
- Hot Key : Yes
- Switching Confirmation : Buzzer
- Keyboard state : Saved and Restored
- Keyboard : PS/2
- Mouse : PS/2
- Monitor : VGA, SVGA, XGA, MultiSync
- Display Data Channel : DDC1, DDC2B, DDC2AB
- Resolution : 1600 x 1200
- Bandwidth : 180M Hz
- Enclosure : Metal
- Storage (Celsius) : 0 ~ 70
- Dimension (LxWxH mm) : 441 x 161.5 x 44.4
- Weight (g) : 2800
- Power Supply : 18W, Universal AC input

## 1.2 PACKING CHECK LIST

Before you begin to install your KVM08, please make sure that you received the following materials as listed below:

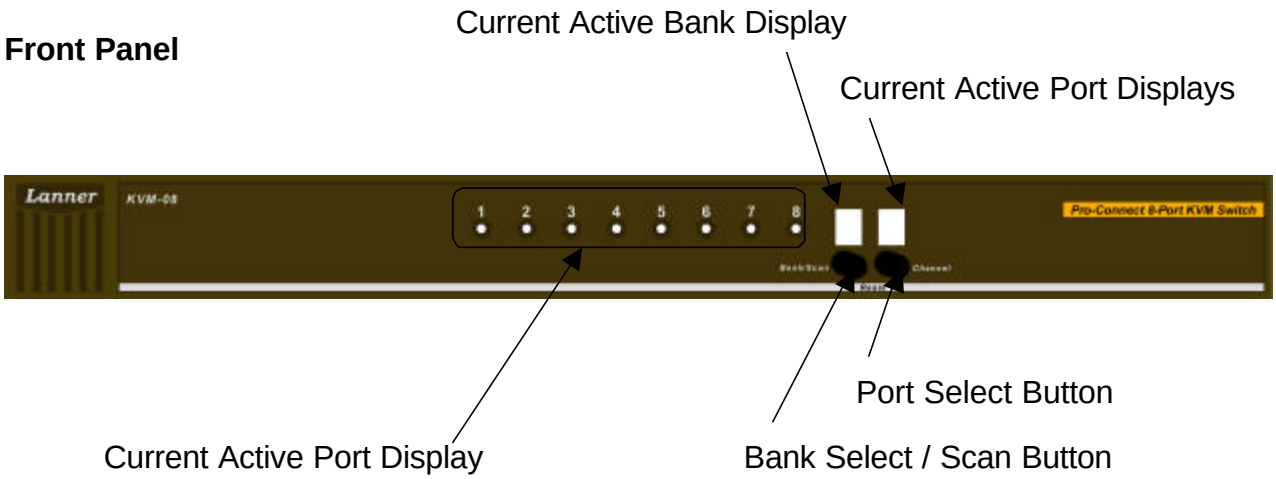
| *Item* | *Qty* | *Remark* |
|---|---|---|
| KVM08 | 1 pcs. | Keyboard, mouse & monitor switch |
| Power cord | 1 pcs. | AC inlet power cable |
| User' s Manual | 1 pcs. | This manual |
| Rack mount bracket | 2 pcs. | |
| Screw | 10 pcs. | M3, fasten rack mount brackets |
| Rubber foot | 4 pcs. | |

# CHAPTER 2.

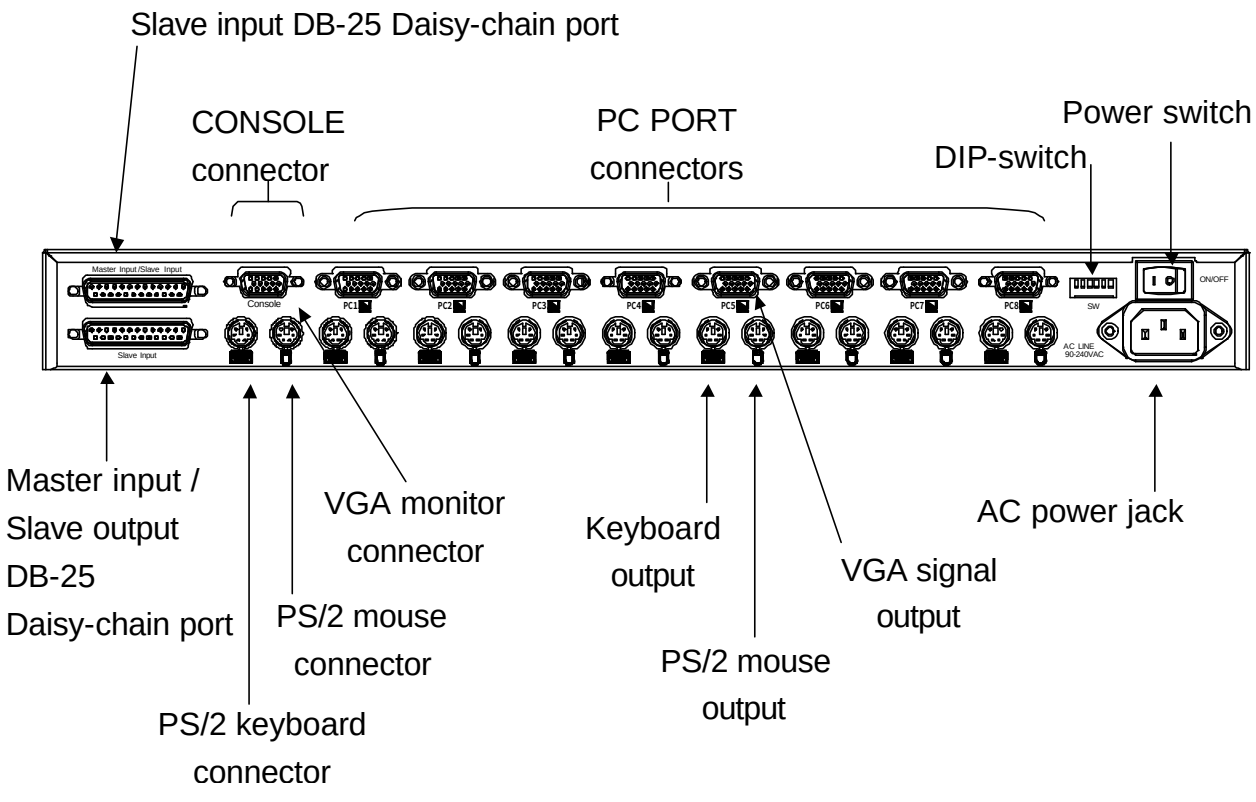
## INSTALLATION

## 2.1 PRODUCT DETAIL

**Front Panel**




**Rear Panel**

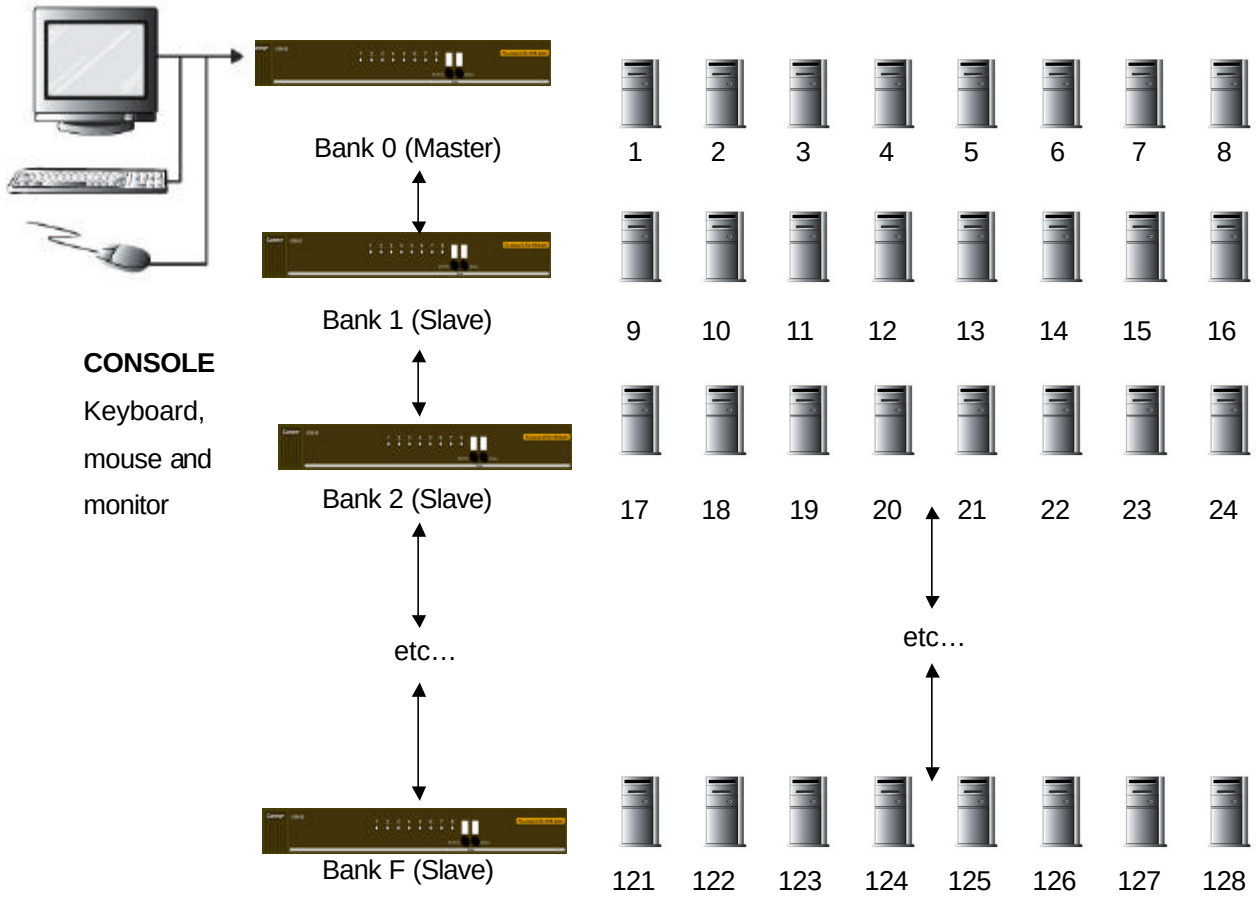


## 2.2 SINGLE UNIT OR DAISY-CHAIN OPERATION

KVM08 has the capability to be Daisy-Chained to 15 more units (for a total of 16), giving the user control over a maximum of 128 computers.

Each KVM08 unit is defined as a "**BANK"**. See the following diagram for more information. BANK numbers range from 0 to F (Hexadecimal), for a total of 16 banks. BANK 0 is the **MASTER** bank while BANK 1 through F are **SLAVE** banks. The MASTER bank is the unit that connects to the console keyboard, mouse and monitor.

The DIP-switch on the rear panel must be set correctly for proper identification and usage. See the next section for the actual settings. **If you are using KVM08 in a single unit configuration, it must be set as the MASTER (BANK 0). If it is to be used as a SLAVE unit, then it must be set to any unused unique bank number from 1 through F.**



## 2.3 HARDWARE INSTALLATION

> ***WARNING!***
>
> Before attempting to connect anything to the KVM08 or the computers, make sure everything is powered off. Otherwise, plugging and unplugging cables may cause irreversible damage to your computers and the KVM08.

**Step 1**

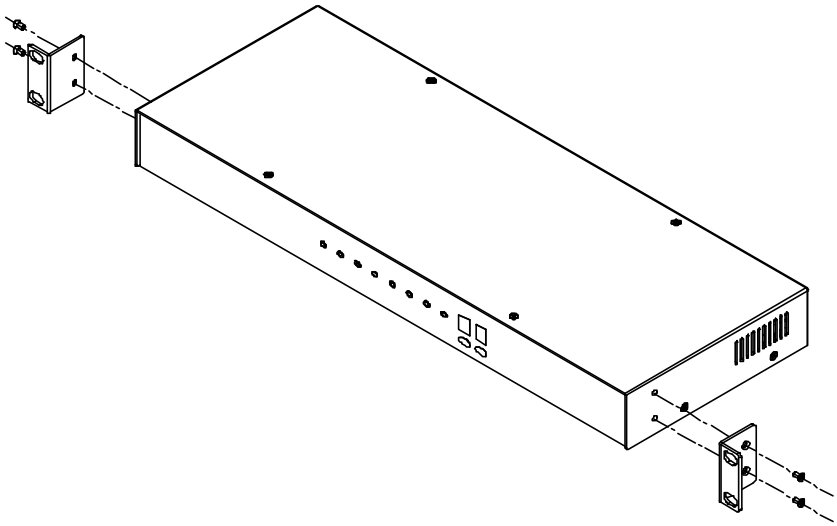
Set the DIP-switch for Auto-scan Interval and BANK Address. If you have only one KVM08, use the MASTER bank setting. If the KVM-08 you are using will be Daisy-Chained off another unit, use a unique slave setting. Please refer to the previous section for more information. NOTE: "ON" is down↓

| DIP-Switch NO. | | Auto-scan Interval |
|---|---|---|
| 1 | 2 | |
| ON | ON | 7 seconds |
| ON | OFF | 15 seconds |
| OFF | ON | 30 seconds |
| OFF | OFF | 60 seconds |

| DIP-Switch NO. | | | | BANK Address | |
|---|---|---|---|---|---|
| 3 | 4 | 5 | 6 | | |
| ON | ON | ON | ON | BANK 0 | MASTER |
| OFF | ON | ON | ON | BANK 1 | SLAVE |
| ON | OFF | ON | ON | BANK 2 | SLAVE |
| OFF | OFF | ON | ON | BANK 3 | SLAVE |
| ON | ON | OFF | ON | BANK 4 | SLAVE |
| OFF | ON | OFF | ON | BANK 5 | SLAVE |
| ON | OFF | OFF | ON | BANK 6 | SLAVE |
| OFF | OFF | OFF | ON | BANK 7 | SLAVE |
| ON | ON | ON | OFF | BANK 8 | SLAVE |
| OFF | ON | ON | OFF | BANK 9 | SLAVE |
| ON | OFF | ON | OFF | BANK A | SLAVE |
| OFF | OFF | ON | OFF | BANK B | SLAVE |
| ON | ON | OFF | OFF | BANK C | SLAVE |
| OFF | ON | OFF | OFF | BANK D | SLAVE |
| ON | OFF | OFF | OFF | BANK E | SLAVE |
| OFF | OFF | OFF | OFF | BANK F | SLAVE |

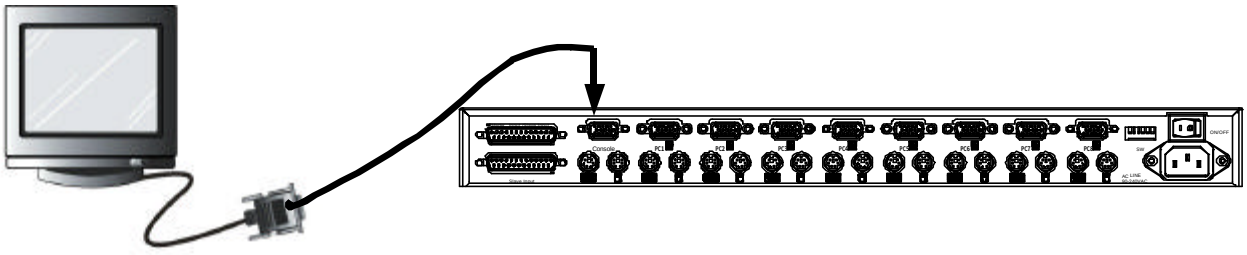
**Step 2**

Find a convenient place to put your KVM08. Its 19" rack mount form factor makes it ideal mountable on 19" rack. When mounting to a rack, attach the included brackets to the sides of the KVM08. Take note of the length of your cables so that your computers, KVM08, keyboard, mouse and monitor are distanced properly.



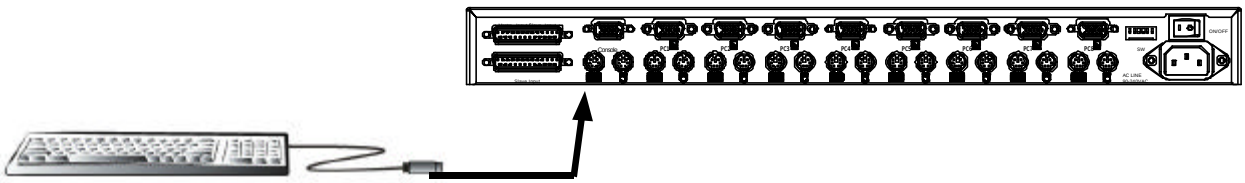
**Step 3**

Connect the monitor to the KVM08. Using the attached cable, or the one included with your monitor, connect it to the HD DB-15 female port on the back of the KVM08 labeled with the monitor symbol at the CONSOLE connector.



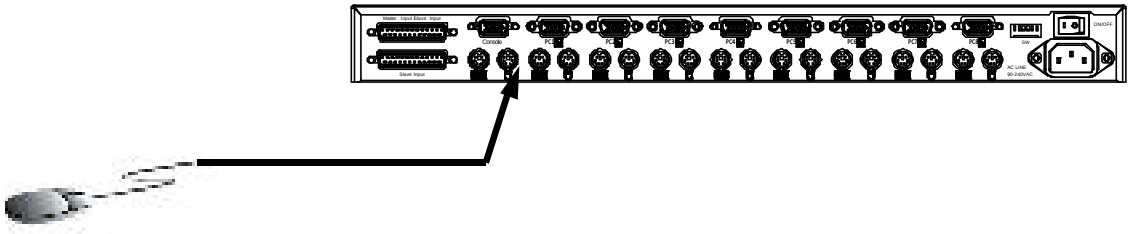
**Step 4**

Connect the keyboard to the KVM08. If you have an AT type keyboard, you will need an AT to PS/2 adapter.



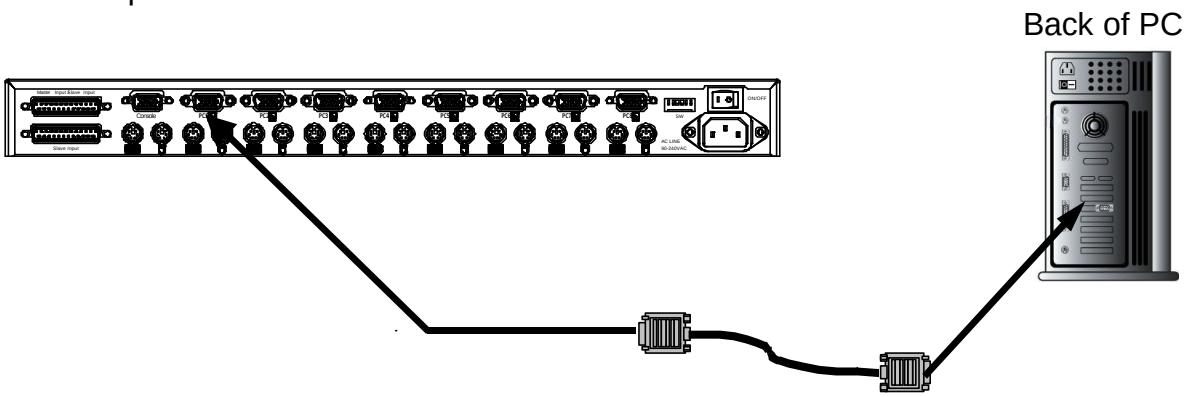
**Step 5**

Connect the mouse to the KVM08.



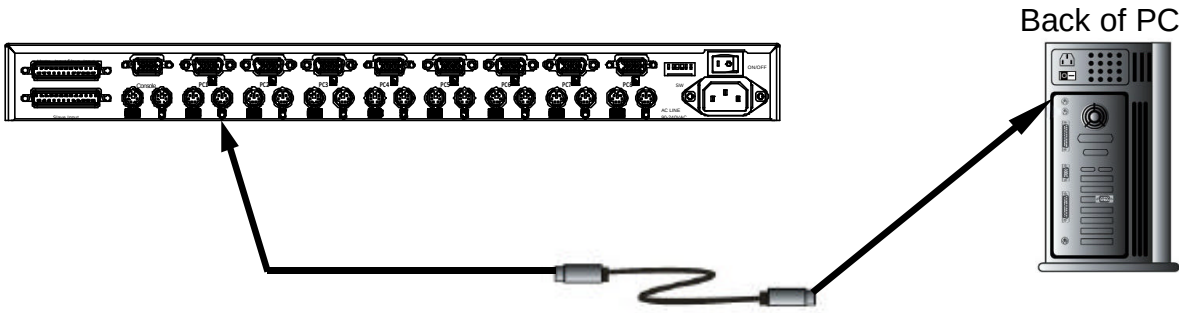
**Step 6**

Connect the first computer' s VGA cable to the KVM08. Using the VGA cable connect the male end of the cable to the VGA port on the computer, and the female end on the PC1 VGA port at the back of KVM08.



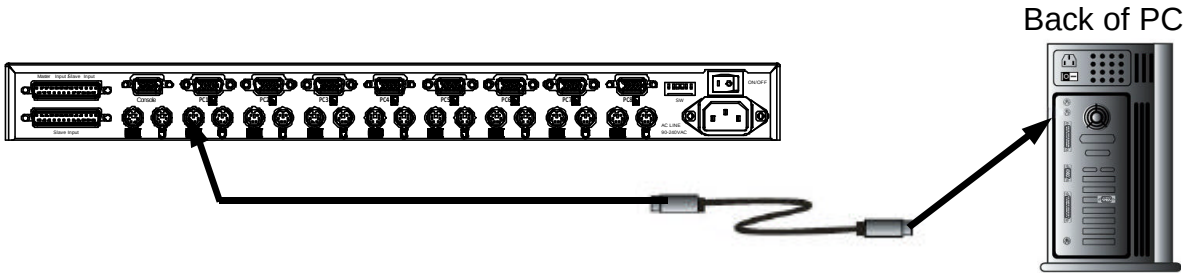

**Step 7**

Connect the first computer' s mouse cable to the KVM08. If using a PS/2 cable connect one end to the PS/2 mouse port on the computer, and the other end to the PC1 PS/2 mouse port on the back of KVM08. If using a serial mouse cable connect one end to a DB-9 serial port on the computer, and the other end to the PC1 DB-9 serial mouse port on the back of the KVM08.



**Step 8**

Connect the first computer's keyboard cable to the KVM08. Using another PS/2 cable connect one end to PS/2 keyboard port on the computer, and the other end to the PC1 keyboard port on the back of KVM08. If your computer has an AT type keyboard port, you will need a PS/2 to AT keyboard adapter.




**Step 9**

Double-check all of the connections. Make sure the keyboard and mouse cables go to the correct ports.

**Step 10**

Repeat step 6 to 8 for the remainder of the computers.

**Step 11**

Attach the power supply to the power jack at the back of KVM08. Plug this into available AC outlet. Flip the power switch on the front panel. You should see the LED for channel 1 on the front panel blink, and hear a beep. Power up your monitor.

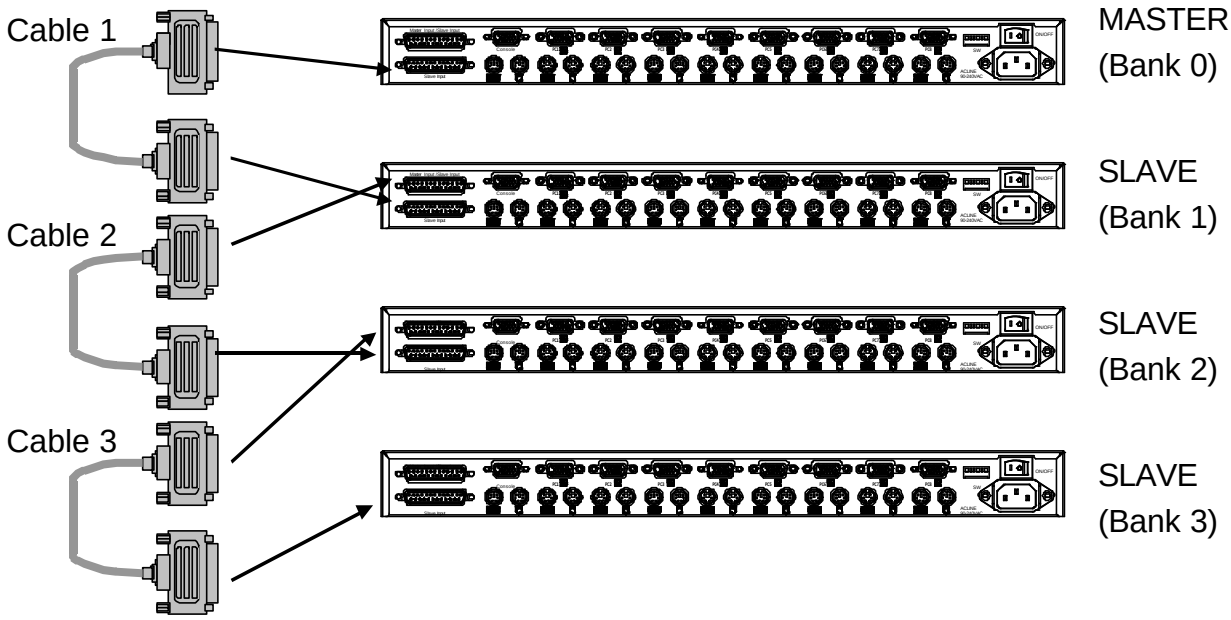
**Step 12**

You can now power up all your computer simultaneously. The first computer will show up on the monitor. Check to see if the keyboard, mouse and monitor work. If this is okay, press the "Channel" button and check the functionality of the other computers. If you find any errors, double-check all of the cable connections.

**Note: Avoid pressing any keys on the keyboard or moving the mouse is the currently selected port has a computer that is in the process of booting up. This may cause the computer to not detect, or initialize the keyboard or mouse drivers properly.**

## 2.4 DAISY-CHAIN

The KVM08 can be daisy-chained with additional KVM08 units through the DB-25 daisy-chain ports. The daisy-chain cable is required (not included) for proper operation. Please refer to the example below. Here, four KVM08 units are cascaded together for control over 32 computers. Recall that a maximum of 16 KVM08 units can be cascaded together for control over 128 computers. Recall that the DIP-switch on the MASTER unit must be set to BANK 0, and the SLAVE units set to a unique BANK (any from 1 through F). See the beginning of this section for this section for more information on the DIP-switch settings.




- After setting the DIP-switch on the SLAVE unit, connect the computers using the same procedure outlined in step 5 to 9 in the previous section. **DO NOT POWER UP THE COMPUTER YET.**

- Using the daisy-chain cable, connect one end to the "Master Input / Slave Output" port of the unit. Refer to the diagram above.
  - If the previous unit is the MASTER, then the other end of the cable connects to the "Master Input / Slave Output" port of the MASTER (such as cable 1 in the diagram above)
  - If the previous unit is a slave, then the other end goes to the "Slave Input" port of the previous slave unit (such as cable 2 and 3 in the diagram above)

- Upon connecting the daisy-chain cable to the previous unit, it should automatically power up if the previous unit is powered up. However, it is still recommended that the power supply be used with the slave unit. You will see the LED display on the front panel show the units bank address setting.

- RESET the MASTER unit by pressing the Bank/SCAN and Channel buttons simultaneously. This is necessary for the MASTER unit to detect the newly added slave unit.

- Verify that the MASTER unit has detected the new slave by pressing the Bank/SCAN button. If it detected the new slave properly, the LED display on the MASTER will register the slave unit' s bank address. If you have many slave units, you may have to press the Bank/SCAN button many times to cycle through all of the preexisting slave units before reaching the newly added unit.

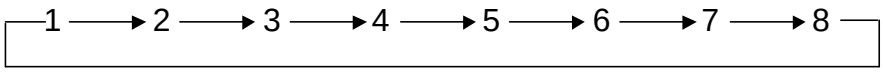
- Now you can power up the computers connected to the newly added salve unit. After all the computers have booted up, you may need to RESET the MASTER unit again to detect the presence of powered computers on the new slave unit.

# CHAPTER 3.

## OPERATION

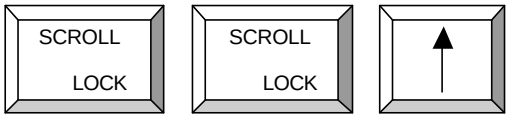
Selecting which computer to operate can be done either by On-Screen Display, the select button, or through keyboard "Hot Key" commands. You will notice that after the KVM08 switches to another computer, the mouse will be inoperative for about 1-2 seconds. This is normal operation and ensures that proper mouse synchronization is established.

Pressing the "Channel" button cycles you through all the ports, including inactive ports.

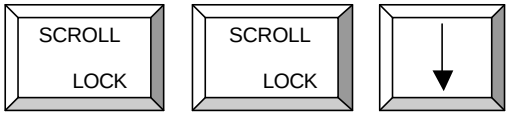



### Keyboard "Hot Key" Commands

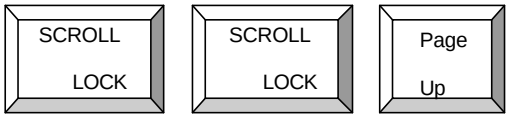
You can also conveniently command the KVM08 to switch ports (channel) through simple keyboard key sequences. To send commands to the KVM08, the SCROLL LOCK key must be pressed twice within 2 seconds. You will hear a beep for confirmation. Below are the different commands.



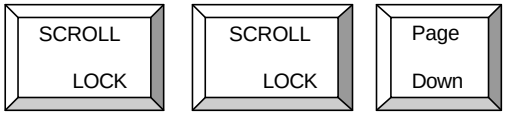

**Switch to Previous Active port**
(On the same BANK)



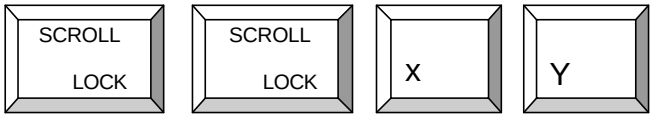

**Switch to Next Active port**
(On the same BANK)




**Switch to Previous BANK**
(By default, selects first active port on BANK)

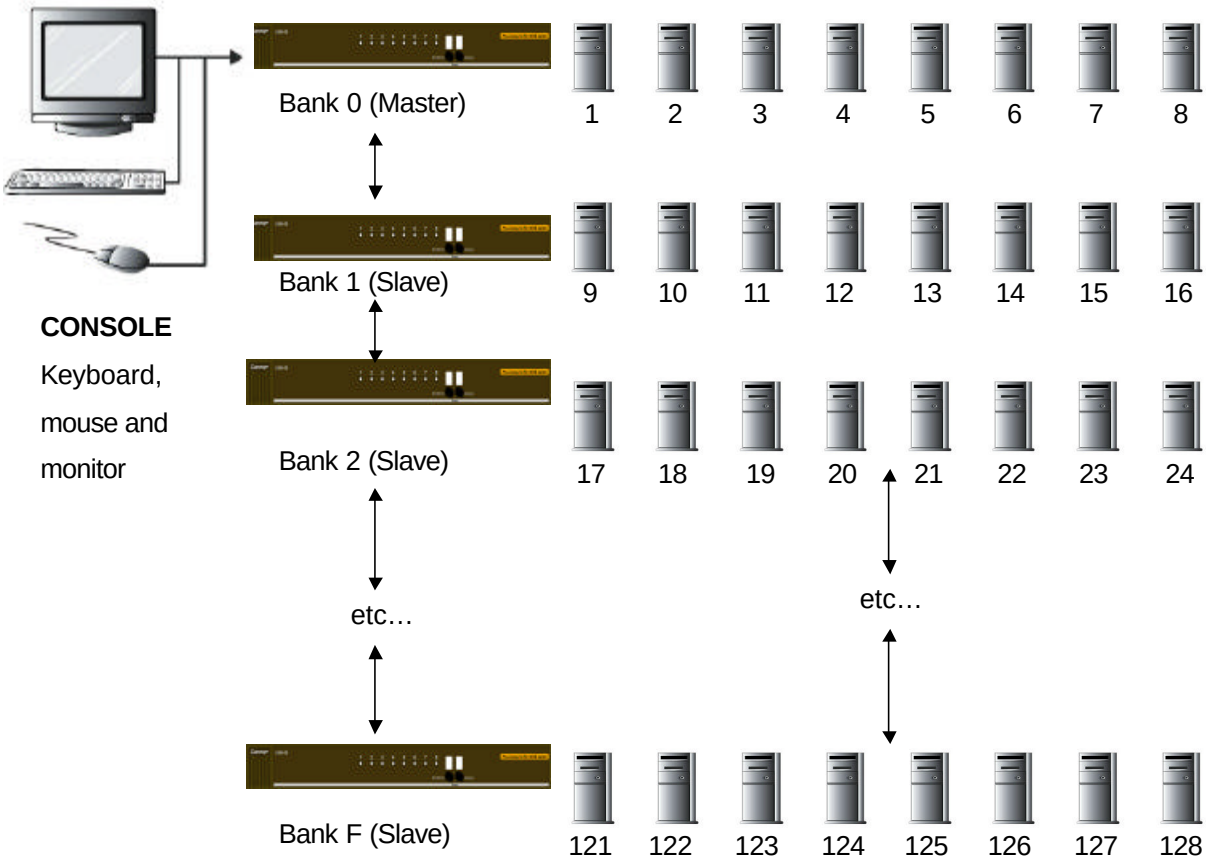



**Switch to Next BANK**
(By default, selects first active port on that BANK)

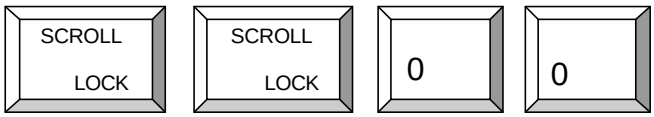



**Directly switches to port Y on BANK X**
X=0 to F (Hexadecimal), Y=1 to 8

You can switch directly to any channel by giving the KVM08 the BANK and Channel numbers. For instance, if you press SCROLL LOCK, SCROLL LOCK, 2, 5, the computer on channel 5 of KVM08 set to BANK 2 will be selected. In the following diagram, that is PC 21. Hence, if you only have one KVM08, the first key (X) must be "0".




## AutoScan Mode



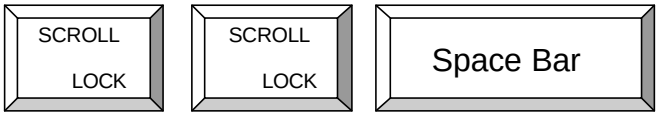

**Enable AutoScan mode**

In AutoScan mode, KVM08 remains on one channel for a number of seconds, before switching to the next. This time interval is set in the On-Screen Display menu.

Note: There is no mouse or keyboard control in this mode. This is necessary to prevent errors. Otherwise, if the user is moving the mouse or using the keyboard when KVM08 switches to the next channel, data flow is interrupted and will cause erratic mouse movement and / or the wrong characters to show up when using the keyboard.

To get out of AutoScan mode, press ANY key.

## On-Screen Display Menu Control



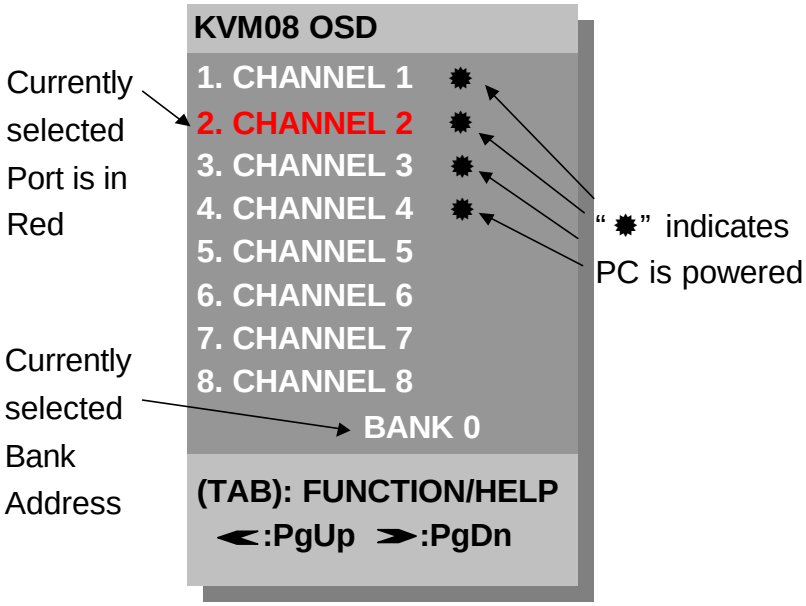

**Enable On-Screen Display Menu**

To get into the On-Screen Display (OSD) menu, press SCROLL LOCK, SCROLL LOCK, SPACE BAR. Immediately, the OSD overlay screen appears. This screen is generated by the KVM08, and does not affect your computers or running software in any way.

The main OSD screen menu is shown on the right. It shows the currently selected BANK. If you have only one KVM08, it will say "BANK 0".

The current selected port is shown in RED.

A "✹" indicates that the computer connected to that port is powered up.




- You can navigate through the active ports by using the arrow keys. The OSD menu will only allow you to move to active ports.

**NOTE**: If a computer is connected and is powered up, but the OSD menu does not display a "✹", you will have to RESET the KVM08 to re-detected the powered computers. This is done by simultaneously pressing the Bank/SCAN and Channel buttons on the front panel.

- Pressing the INSERT key allows you to rename the port. Press ENTER to complete.

**NOTE**: Inadvertently pressing the SCROLL LOCK, SCROLL LOCK, DELETE keys will erase any given names on the OSD menu.

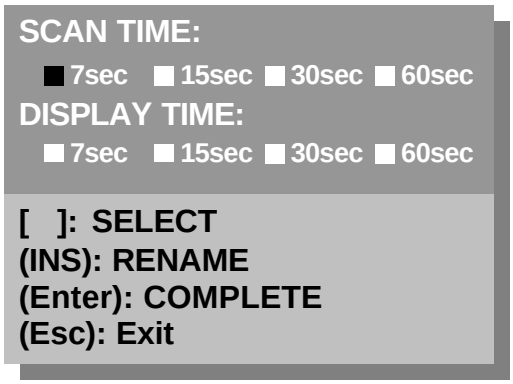
- Pressing the ESC key exits the current screen.
- To view a different BANK, pressing the PAGE UP key goes to a previous BANK, while the PAGE DOWN key brings you to the next BANK.
- Once you have selected a computer on the menu, press ENTER to switch to that port.
- Pressing the TAB key opens up the Function menu. In this menu, you can select the SCAN TIME and DISPLAY TIME.

**SCAN TIME:**

Amount of time the KVM08 stays one port before switching to the next port when in Scan Mode

**DISPLAY TIME:**

Amount of time the OSD Menu or Port Name remains displayed on-screen after making a port selection




**NOTE**: If there are slave units present, the SCAN TIME and DISPLAY TIME settings are set on the MASTER unit only, and need not be set on the slave units.

**The Bank/SCAN Button:**

Pressing the Bank/SCAN button cycles you through all the active BANKs (if there are slave units present) and then puts the unit in AutoScan mode. If the unit is a single MASTER unit, pressing the button immediately invokes AutoScan mode. This is evident by a long beep, followed by two short beeps.

# CHAPTER 4.

# TROUBLE SHOOTING

## General Problems

**Q : The OSD menu does not display a "*" on a channel where a computer is connected and powered up. What do I do?**

**A :** ・Reset the KVM08 by simultaneously pressing the Bank/SCAN and Channel buttons on the front panel. Access the OSD menu again and it should have re-detected all the active channels.

**Q : When cascading the MASTER unit does not see the slave unit(s).**

**A :** ・Refer to the Installation section for information on how to properly connect the daisy-chain cable.
・Make sure that the daisy-chain cable that you are using is right. Using any other cable will not guarantee proper operation or video quality.
・Reset the MASTER KVM08
・Although a power supply is not necessary to make the slave unit work, try adding a power supply.

## Monitor / Video Problems

**Q : I am getting ghosting shadowing or fuzzy images on my monitor. What do I do?**

**A :** ・Check the cables and make sure they are inserted properly.
・Your resolution and / or refresh rate is extremely high, or your cable is too long. Replace your VGA cables with coaxial, double-shielded cables.
・Check to make sure that the power cord is plugged in and is working properly. Make sure the power switch is on.
・Lower your refresh rate and / or screen resolution settings.

## Keyboard Problems

**Q : The keyboard is not detected, or a keyboard error is reported during boot-up.**

**A :** ・Check the cables and make sure they are inserted properly in the correct channels.
・Check to make sure that the power cord is plugged in and is working properly. Make sure the power switch is on.
・Reset the KVM08 by simultaneously pressing the Bank/SCAN and Channel buttons on the front panel. Access the OSD menu again and it should have re-detected all the active channels.

・Do not press any keys on the keyboard while the selected computer is booting up. This is true for any PC, whether stand-alone or connected to a KVM08.

**Q : The computers boot up fine, but the keyboard does not work.**

**A :** ・Check the cables and make sure they are inserted properly in the correct ports.
・Make sure the keyboard works when directly plugged into the computers.
・Try a different keyboard, but use only 101,102 or 104-key keyboards.
・Make sure that the keyboard driver is for 101, 102 or 104-key keyboards, and not old XT keyboards.
・Check to make sure that the power cord is plugged in and is working properly. Make sure the power switch is on.
・Reset the KVM08 by simultaneously pressing the Bank/SCAN and Channel buttons on the front panel. Access the OSD menu again and it should have re-detected all the active ports.

## PS/2 Mouse Problems at the console or computers

**Q : The mouse is not detected during boot-up.**

**A :** ・Check the cables and make sure they are inserted properly in the correct ports.
・Check your computer / motherboard documentation making sure that the PS/2 mouse port (or IRQ) is enabled.
・Make sure the mouse is directly plugged into the computer. Rebooting is necessary when trying this. If the computer still does not detect the mouse, then your computer' s PS/2 mouse port has a problem.
・Reset the KVM08 by simultaneously pressing the Back/SCAN and Channel buttons on the front panel. Access the OSD menu again and it should have re-detected all the active ports.

**Q : The computer boot up fine, but the mouse does not work.**

**A :** ・Check the cables and make sure they are inserted properly in the correct ports.
・Make sure the mouse works when plugged into the computer. Rebooting is necessary when trying this. If the mouse pointer still does not move, then either your PS/2 mouse port or the mouse itself has a problem.
・Try a different mouse.
・Make sure the mouse is a true PS/2 mouse. A combo mouse will work just a s long as it is set for PS/2 mode with the correct adapter. A serial-only mouse with a combo mouse adapter WILL NOT work.
・Check to make sure that the power cord is plugged in and is working properly. Make sure the power switch is on.

・Reset the KVM08 by simultaneously pressing the Bank/SCAN and Channel buttons on the front panel. Access the OSD menu again and it should have re-detected all the active ports.

**Q : When I switch from one port to another, mouse movement is completely erratic. What do I do?**

**A :** ・Reset the KVM08 by simultaneously pressing the Bank/SCAN and Channel buttons on the front panel. Access the OSD menu again and it should have re-detected all the active ports.

・Make sure you do not have more than one mouse driver. Make sure that driver is either for a Standard PS/2 or Microsoft® compatible PS/2 mouse. Try to obtain the latest version from your hardware manufacturer.

・If you are using a specialized mouse such as a cordless mouse, scrolling mouse or mice with more than 2 operational buttons, use generic PS/2 mouse drivers. Non-standard mice often use non-PS/2 proprietary mouse protocol.

・Make sure you do not have any mouse drivers loaded in your config.sys or autoexec.bat files.

・Avoid moving the mouse or pressing the mouse buttons when switching ports.

・Reset the mouse to resume proper mouse movement simply by unplugging the mouse form the front of the KVM08 for about 2-3 seconds, and plugging it in again.

## Problems with computers using the serial mouse output

Note: The KVM08 has integrated mouse conversion technology. This technology converts the PS/2 mouse signals at the console to serial mouse signals. Windows® 9x Control Panel System applet may not display that it has detected a mouse, but the Modem applet will show a serial mouse at a certain serial port.

**Q : The computers boot up fine, but the mouse does not work**

**A :** ・Check the cables and make sure they are inserted properly in the correct ports.

・Check the cables and make sure that it is a straight-through DB-9 male / female cable.

・Check your computer / motherboard documentation to make sure that the serial ports are enabled, and that there are no IRQ or base address conflicts with other serial ports or modems.

・Plug in a serial mouse directly to your computer, and reboot. If the mouse pointer still does not move, then there may be no serial mouse drivers installed, or the serial port on your computer may have other conflicts or problems.

- Try a different PS/2 mouse at the console.
- Make sure the mouse (at the console) is a true PS/2 mouse. A combo mouse will not work just as long as it is set for PS/2 mode with the correct adapter. A serial-only mouse with a combo mouse adapter WILL NOT work.
- Check to make sure that the power cord is plugged in and its working properly. Make sure the power switch is on.
- Reset the KVM08 by simultaneously pressing the Bank/SCAN and Channel buttons on the front panel. Access the OSD menu again and it should have re-detected all the active ports.

**Q : When I switch from one port to another, mouse movement is completely erratic. What do I do?**

**A :**
- Reset the KVM08 by simultaneously pressing the Bank/SCAN and Channel buttons on the front panel. Access the OSD menu again and it should have re-detected all the active ports.
- Make sure you do not have more than one mouse driver. Make sure that driver is either for a Standard PS/2 or Microsoft® compatible PS/2 mouse.
- Avoid using a specialized mouse at the console such as a cordless mouse, scrolling mouse or mice with more than 2 operation buttons. Non-standard mice often use non-PS/2 proprietary mouse protocol.
- Make sure you do not have any mouse drivers loaded in your config.sys or autoexec.bat files.
- Avoid moving the mouse or pressing the mouse buttons when switching ports.
- Reset the mouse to resume proper mouse movement simply by unplugging the mouse form the front of the KVM08 for about 2-3 seconds, and plugging it in again.

**Q : The wheel on the IntellMouse® does not work on my computer. Why?**

**A :**
- The integrated mouse conversion technology converts only the standard PS/2 signals which are the buttons and the x and y coordinate movement, but not the wheel movement or wheel button. This is because the wheel button data use non-PS/2 protocol.